

4731.4471 GAMMA STEREOTACTIC RADIOSURGERY UNITS; FULL CALIBRATION.

Subpart 1. **Calibration required.** A licensee authorized to use a gamma stereotactic radiosurgery unit for medical use must perform full calibration measurements on each unit:

- A. before the first medical use of the unit;
- B. before medical use under the following conditions:

(1) whenever spot check measurements indicate that the output differs by more than five percent from the output obtained at the last full calibration corrected mathematically for radioactive decay;

(2) following replacement of the sources or following reinstallations of the gamma stereotactic radiosurgery unit in a new location; and

(3) following any repair of the gamma stereotactic radiosurgery unit that includes removal of the sources or major repair of the components associated with the source assembly; and

C. at intervals not exceeding one year, except that relative helmet factors need only be determined before the first medical use of a helmet and following any damage to a helmet.

Subp. 2. **Required determinations.** To satisfy subpart 1, full calibration measurements must include determination of:

- A. the output within plus or minus three percent;
- B. relative helmet factors;
- C. isocenter coincidence;
- D. timer accuracy and linearity over the range of use;
- E. on-off error;
- F. trunnion centricity;
- G. treatment table retraction mechanism, using backup battery power or hydraulic backups with the unit off;
- H. helmet microswitches;
- I. emergency timing circuits; and
- J. stereotactic frames and localization devices (trunnions).

Subp. 3. **Required system.** A licensee must use the dosimetry system described in part 4731.4468, subpart 1, to measure the output for one set of exposure conditions. The

remaining radiation measurements required under subpart 2 may be made using a dosimetry system that indicates relative dose rates.

Subp. 4. **Required protocols.** A licensee must make full calibration measurements required under subpart 1 according to published protocols accepted by nationally recognized bodies.

Subp. 5. **Required corrections.** A licensee must mathematically correct the outputs determined under subpart 2, item A, at intervals not exceeding one month for cobalt-60 and at intervals consistent with one percent physical decay for all other radionuclides.

Subp. 6. **Authorized medical physicist.** Full calibration measurements required under subpart 1 and physical decay corrections required under subpart 5 must be performed by the authorized medical physicist.

Subp. 7. **Record retention.** A licensee must retain a record of each calibration according to part 4731.4518.

Statutory Authority: *MS s 144.1202; 144.1203*

History: *29 SR 755*

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